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Relationship between metacognition, goal orientation and academic achievement

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Abstract

Metacognition is a self monetary process which helps the individual to find out strategies to learn and memorize. This ability helps the students to gain achievement orientation, either mastery or performance, which in turn results in academic success. Following study aspires to find out relationship between these three variables among graduates of public and private universities. All university graduates of public and private sector comprise the population of the study. Convenient sampling technique was used to collect data. The data was collected through survey encompassing goal orientation scale, metacognition scale (MAI) and demographic information. The data was analyzed by using correlation analysis. The results showed that there was a moderate relationship between metacognition and goal orientation and academic achievement but week relation was found between metacognition and achievement.

Keywords: Metacognition, goal orientation, academic achievement;

1. Introduction

Researchers in the field of educational psychology have been investigating the relationship of certain cognitive factors with academic performance since long. The most eminent work in this respect combines metacognition with academic achievement. The current study aims to find out the relationship among metacognition and achievement goals in relation to the academic success.

Academic success is referred to the academic performance which is measured as Grade point Average or CGPA in higher education institutions of the country. GPA is cumulative score across the subject areas and over the semester so it provides fair measure of success of the students in university. Students' academic success depends on number of factors including goal orientation. According to Dweck (1989) whenever the students are in learning environment they are assumed to have certain goals of learning which are referred as achievement goals. The two main types of goals include mastery goal and achievement goals (Dweck and Leggett, 1988). The students with mastery goal orientation concentrate on learning and mastering the subject content. Those who have dominant mastery goals have characteristics of accepting challenging tasks and to strive under difficult conditions. These people have solution-oriented approach and respond to failure in order to solve the problem which in turn leaves positive impact on performance with improvement (Elliot & Dweck, 1988). On the other side, the performance goals motivate the students to get better scores to avoid incompatibility (Dweck & Leggett, 1988). The people who possess

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performance goals have tendency to exhibit skill and try to avoid the impression of lack of competency. (Dweck & Leggett, 1988; Elliot & Dweck, 1988). These people try to escape from challenges and obstructions and prefer to perform simple tasks that require low mastery skills and where there are maximum chances of success. These people, when face a challenging task, respond differently on different occasions like sometimes they withhold owing to the danger of failure or make pessimistic capability ascriptions or show least interest in the task. The previous studies indicate that goal orientation may occur independently thus allowing the students to espouse multiple goals simultaneously for example orientation for mastery of information as well as doing effort to perform good in test (Pintrich & Garcia, 1991; Meece & Holt, 1993; Nolen,1988) . The research also indicates that students may adopt single or both goals with one as primary goal and the other as secondary goal. These goals not only affect academic success but also are affected by metacognition.

Metacognition refers to the process and of keeping an eye on one's own thoughts and performance of tasks or more simply metacognition means 'thinking about one's own thinking' (Flavell, 1979). This can also be referred as higher-order cognitive processes that are engaged in learning for example scheduling for learning, using suitable skills or approaches for problem solving, calculating approximate for performance and regulating the degree of learning (Dunslosky & Thiede, 1998). According to Schraw and Moshman (1995) metacognition has two major components i.e., metacognitive knowledge and metacognitive regulation. Metacognitive knowledge is concerned with knowledge regarding cognition such as knowledge of skills and strategies that work best for learner and the information that how and when these strategies and skills for improving the learning. On the other hand the metacognitive regulations are the activities which control individual's learning and thinking like planning, monitoring comprehension and evaluation (Artzt & Armour-Thomas, 1992; Baker & Brown , 1980; Schraw & Dennison, 1994). Metacognition is considered important for learning as it serve as a strong predictor of academic success (Dunning, Johnson, Ehrlinger & Kruger, 2003; Kruger & Dunning, 1999) . The research studies conducted by Kruger and Dunning (1999) indicate that the students with strong metacognitive skills exhibit good academic performance in contrast to the students with poor metacognitive skills. They also suggest that training may also help the low achievers to improve the metacognitive skills as well as academic performance. The research also showed that the people with poor metacognitive skills are also considered as incompetent and that the individual differences have a great impact on student's skills. According to Everson and Tobias, (1998), metacognition help the students to be strategic while learning for example it guides the students to go and learn for new information rather then going for repeating the previously learned material. The research conducted to find the relation between metacognition and performance goals show mix results. According to many researches the relationship is weak (Wolters, 1998) or no relationship (Ford, Smith, Weissbein, Gully& Salas, 1998). While some others indicates that there is some positive relationship (Ames & Archer, 1988; Butler, 1993). On the other hand mastery goals show strong and positive relationship with performance instead of performance goals (Button, Mathieu, & Zajac, 1996). These mix findings suggest that every individual has his own exclusive profile in which the above mentioned variables are uniquely interdependent. The present study is conducted to examine what profile university students exhibit related to relationship among metacognition, goal orientation and academic success in the Punjab, Pakistan. University students were selected because in Pakistan, semester system starts at university level and before it they study in annual system. Semester system is the only which demands and then inculcates independent learning among students. Metacognition serves their purpose well at this level. This profile may serve them to realize their metacognitive strengths and weaknesses. It may ultimately motivate them to enhance their strengths and overcome their weaknesses for greater than before learning.

2. Objective of study

The present study aims to examine the relationship between goal orientation, metacognition and academic success.

3. Method

3.1.Population and sample

Data was collected from 345 final year students from two public and two private sector universities in the Punjab, Pakistan. The sample includes both male and female students who are at the verge of completing their studies.

3.2. Procedure

Survey method was used to conduct the study. The participants were debriefed regarding focus of the study. The participants completed the questionnaire that comprised of three sections. The first part includes 25 items goal orientation inventory (Roedel, Schraw & Plake, 1994). This instrument consists of 12 items that asses mastery goals and five items that assess performance goals. The five point Likert scale was used for this purpose. The second part of the survey form consists of metacognitive awareness inventory (MAI; Schraw & Dennison, 1994). It consists of fifty two items and is considered a complete scale for assessment of metacognition. Third section was a demographic sheet asking the information about sex, age, institute name, gender and GPA. These GPA were reported by the students and were reconfirmed from the administration.

3..3 Results

Descriptive statistics is first and prime step for quantitative analysis because they provide information about the distribution of scores (i.e., average and mean scores) thus helping to discover any inconsistency in data. The Table 1 presents descriptive statistics for all the variables.

4. Tables

Table 1. Mean, Standard Deviations, minimum and maximum

	M	**SD**	**Min**	**Max**
Mastery goals	46.05	8.10	24.00	101.0
Performance goals	19.67	3.77	0.00	25.00
Metacognition	2.017	26.3	52.00	281.0
College CGPA	3.134	0.500	0.00	4.00

At the second step the correlation was applied to find out the relationship between metacognition, goal orientation and academic achievement.

Table 2. Correlation between metacognition, academic achievement and goal orientation

	CGPA	MAI	Mastery Goal
CGPA	-------		
MAI	.221(**)	___	
Mastery Goal	.171(**)	.529(**)	____
Performance Goal	.180(**)	.494(**)	.440(**)

** Correlation is significant at the 0.01 level (2-tailed).

Table 2 shows the relationship among metacognition, goal orientation (mastery and performance goals) and academic achievement. It is obvious from table that there is weak relationship between metacognition and CGPA ($r= 0.221$, $p<0.000$), while mastery ($r= 0.17$, $p =0.002$) and performance ($r= 0.180$, $p= 0.001$) goals also show a weak relationship with CGPA.

Table 2 also shows relationship between metacognition, mastery goals and academic achievement. The table indicates that there is a moderate relationship ($r=0.44$, $p=<0.01$) between mastery and performance goals thus supporting previous studies that students might have multiple goals simultaneously. On the other hand there is a strong evidence that mastery goals are highly correlated with metacognition ($r=0.53$, $p < 0.01$). on the other hand the performance goals show slightly lower correlation with metacognition ($r=0.49$, $p<0.01$). On the basis of these findings it can be concluded that the students with mastery and performance goals have almost equally good metacognitiv skills.

4. Conclusion

The focus of present study was to investigate the relationship among goal orientation, metacognition and academic achievement. The results indicate that there is a week relationship between performance, mastery goals and academic achievement. So it can be said that the goal orientation does not affect academic achievement of the students and the students who just study to perform well in the test or the students who strive to gain mastery have almost equal in academic achievement. The findings of the study also show that there is weak relationship between metacognition and academic achievement and there is no obvious change in academic achievement of the students with high metacognitiv skills.

5. Discussion

The previous research studies show inconsistent results about the relationship between metacognition, performance goals and academic achievement. According to some studies there is no relationship between performance goals and academic achievement (Butler, 1993; Button, Mathieu & Zajac, 1996). On contrary to this some other researches show a positive relation and suggest that the students with high performance goals also achieved good grades (for examples Elliot & Church, 1997; Middleton & Midgley, 1997). However the results of present study are in accordance to former findings that there is weak relationship between of performance goals and academic achievement.

The reasons of week relationship may include the survey nature of the study in which the students filled their perceived performance goals which may be different from the actual. The other reason may include that GPA was used for measuring academic achievement, although it gives information about academic success however it might not be a true measure of learning.

As the GPA was used as indicators for academic achievement which may not give clear picture of actual learning so the further research by using other measures of learning can help in getting more clear relationship between the these variables.

The survey type of the study has its own limitation so experimental studies may help the to establish better casual relationship between goals, achievement and metacognition. The future research should also focus on the learning environment finding it effects on using or setting performance goals or mastery goals as per requirement of the subject taught and learning experiences provided.

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